Information Preserving Space Warping to prevent affine collapse in neural networks

Information Preserving Space Warping
to Prevent Affine Collapse in Neural Networks
Problem: Affine Collapse
Rank deficiency
• Loss of global structure
• Limited expressivity
Our Solution: Information Preserving Space Warping (IPSW)
• Global non-linear behavior
• Information (volume) preserved
• Prevents affine collapse
• Better generalization
Warping Function W: ℝ^m → ℝ^n
|det(∂W(x)/∂x)| = 1 ∀x ∈ ℝ^n
Jacobian determinant = 1 ⟹ Information Preserving
Volume Preserved, Structure Maintained
WORKS CANTEEN
Good ideas better with good lunch!
TODAY'S MENU
• TERIYAKI BOWL
• VEGGIE CURRY
• PASTA PRIMAVERA
• MISO SOUP
• SALAD BAR
COMPLIMENTARY LUNCH & GELLO DESSERT!
Gello
Good food. Great friends. Better ideas.

In place of local non-linear activation function approaches such as ReLU.